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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,435	11/21/2003	Kenichi Tatehara	10873.1323US01	3032
23552	7590	10/07/2005	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			UNELUS, ERNEST	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

E/C

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/719,435		TATEHARA ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Ernest Unelus		2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5 is/are rejected.
- 7) ☐ Claim(s) 4 and 6-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>02/23/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagano (4,806,873).

With respect to claim 1, Nagano discloses a laser diode driving device, comprising; a constant current source; a switch (s1) with one end connected to the constant current source (1b); and a laser diode drive current amplifier (A1) with an input terminal connected to the other end of the switch and an output terminal connected to a laser diode (5) (see figure 2).

With respect to claim 3, Nagano discloses a constant current source (1b); a switch (s1) with one end connected to the constant current source; a laser diode drive current amplifier (A1) with an input terminal connected to the other end of the switch and an output terminal connected to a laser diode (LD); a first differentiation circuit (AC) that differentiates a control signal for controlling the switch; and a first voltage-current conversion circuit that outputs a current having the same polarity as that of the constant current source (col. 4, lines 10-20), in which an input terminal is connected to an output

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terminal of the first differentiation circuit, and an output terminal is connected to an input terminal of the laser diode drive current amplifier (see figure 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano in view of Tatehara et al. (US 2003/0086456).

With respect to claims 2 and 5, Nagano disclose a laser diode driving circuit without specifically indicating that the laser diode drive current amplifier is composed of a mirror circuit of a PchMOS transistor. However, the laser diode drive current amplifier composing of a mirror circuit of a PchMOS transistor is well taught by Tatehara (see figure 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a mirror circuit of a PchMOS transistor in a laser diode drive circuit to decrease the rising time current of the laser diode.

### ***Allowable Subject Matter***

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Claims 4, 6, 7, 8, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

the prior art of record, taken alone or in combination, fails to disclose or render obvious, a second differentiation circuit that differentiates the control signal for controlling the switch; and a second voltage-current conversion circuit that outputs a current having a polarity opposite to that of the constant current source, in which an input terminal is connected to an output terminal of the second differentiation circuit, and an output terminal is connected to an input terminal of the laser diode drive current amplifier, a differentiation circuit includes a capacitor at an output terminal, a first voltage-current conversion circuit includes; a first resistor with one end connected to an output terminal of the first differentiation circuit and the other end grounded; a first diode with a cathode connected to an output terminal of the first differentiation circuit and an anode grounded; and a first transistor with a base connected to the output terminal of the first differentiation circuit, an emitter grounded, and a collector connected to the input terminal of the laser diode drive current amplifier, and a second voltage-current conversion circuit includes: a second resistor with one end connected to an output terminal of the second differentiation circuit; a second diode with a cathode connected to an output terminal of the second differentiation circuit; and a second transistor with a base connected to the output terminal of the second differentiation circuit, a collector connected to a power supply terminal, and an emitter connected to the input terminal of

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the laser diode drive current amplifier together with the other end of the second resistor and an anode of the second diode.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Taguchi et al. (US Pat. 5,848,044) discloses a laser driving circuit and device without specifically disclosing a second differentiation and a conversion circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-0218. The examiner can normally be reached on 9:00am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Zandra V. Smith', with a large, stylized initial 'Z'.

Zandra V Smith

Primary Examiner

(Trainer 2803)